

Features

Compact design saves precious panel space.

Model 77Cs are UL listed overload relays.

Digital programmability permits precise customization.

15 parameters can be programmed for maximum protection.

Last fault memory provides instant troubleshooting diagnostics.

Voltage, current, last 4 faults, kWh usage, and power factor are recordable with communications package.

RS-485 port offers communication capabilities with computerized systems using Modbus.



MotorSaver
SINGLE-PHASE ELECTRIC
MOTOR PROTECTOR

**Model 77C
Model 77C-LR**
Overload Relay
Engineered
Protection

The **Model 77C** is a fully-programmable electronic overload relay designed to monitor single-phase systems. It can be used as a stand-alone product or the communication port can be used to form a network to monitor the motors from a PC or other control system. Applications include **CONVEYOR SYSTEMS, HVAC EQUIPMENT, PUMPS, SAWS, GRINDERS, AND OTHER SINGLE-PHASE ELECTRIC MOTORS.**

The Model 77C includes a built-in current transformer (CT) which will handle applications from 2-90 Amps. An external current transformer can be implemented to handle applications up to 800 Amps. The Model 77C-LR is a low amperage range model used with motors drawing 1-9 full load amps. The following 14 parameters can be viewed from the 3-digit alphanumeric display or from a network computer: low voltage setpoint, high voltage setpoint, CT size/loops setting, overcurrent trip point, undercurrent trip point, trip class (5, 10, 20, 25, 30, or linear), rapid-cycle timer (RD1), overload restart delay (RD2), underload restart delay (RD3), number of restarts after an overload (manual or automatic), RS-485 address, number of restarts after an underload fault, underload trip delay, and linear overcurrent trip delay. Both the voltage and the line current can also be viewed while the motor is running.

The Model 77C can be used with an optional RS-485 module (pn RS485MS-2W) allowing up to 99 Model 77C, Model 777, Model 601, or RM-2000 units to be linked together using Modbus. From the computer, an operator can control the motor, view the operating parameters, or log information. SymCom's Solutions software and RS-485 module are sold separately.

Protects Single-Phase

Motors from:

- Overload
- Underload
- Jams
- Low voltage
- High voltage
- Rapid cycling

Additional Features:

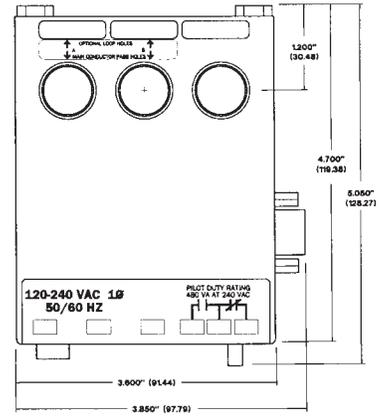
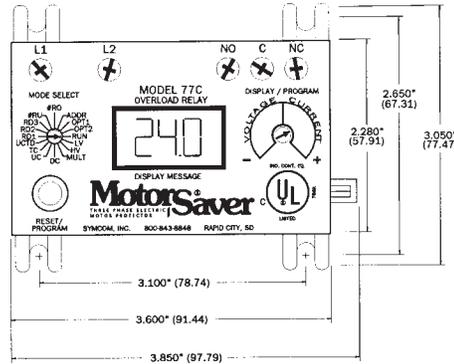
- Fully programmable
- CSA approved
- CE compliant
- UL and cUL listed
- Automatic or manual reset
- Tamper guard
- RS-485 communication port (pn RS485MS-2W)
- Remote reset
- Surface and DIN rail mountable
- Alphanumeric LED diagnostic display
- Last fault memory
- 5-year warranty
- Made in USA

Motorsaver[®]

THREE-PHASE ELECTRIC MOTOR PROTECTOR

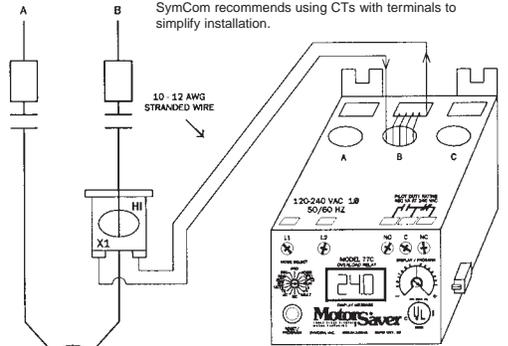
Specifications
•
Operating Points
•
Special Options

Model 77C & 77C-LR Overload Relay

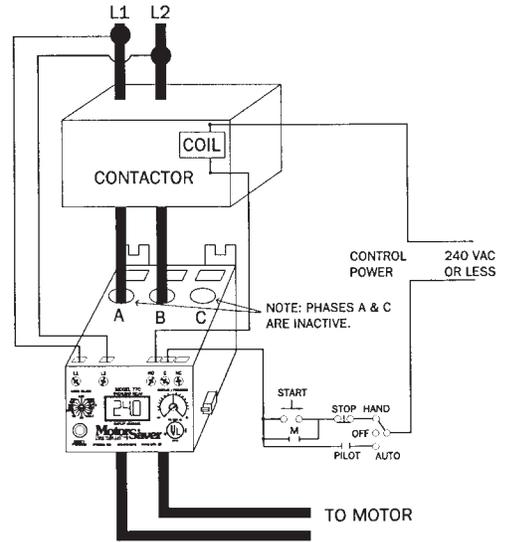


MODEL 77C, 77C-LR SPECIFICATIONS	
Electrical	
Input Voltage	100-240VAC, single-phase
Frequency	50/60 Hz
Motor Full Load Amp Range - 77C	2-25 Amps, single-phase (Loops Required) 26-90 Amps, single-phase (Direct) 91-800 Amps, single-phase (External CTs)
Motor Full Load Amp Range - 77C-LR	1.0-2.5 Amps (Loops Required) 2.0-9.0 Amps (Direct)
Short Circuit	100kA per UL, 10kA per CSA
Power Consumption	10 Watts (max.)
Output Contact Rating SPDT (Form C)	Pilot duty rating: 480VA @ 240VAC General purpose: 10A @ 240VAC
Expected Life	1 x 10 ⁶ operations
Mechanical	1 x 10 ⁶ operations at rated load
Electrical	
Accuracy at 25° C (77° F)	
Voltage	±1%
Current	±3% (Direct, no external CTs)
Timing	5% ± 1 second
Repeatability	
Voltage	± 0.5% of nominal voltage
Current	± 1% (Direct, no external CTs)
Safety Marks	
UL	UL508, UL1053
CE	IEC 60947-1, IEC 60947-5-1
Standards Passed	
Electrostatic Discharge (ESD)	IEC 1000-4-2, Level 3, 6kV contact, 8kV air
Radio Frequency Immunity (RFI), Conducted	IEC 1000-4-6, Level 3 10V/m
Radio Frequency Immunity (RFI), Radiated	IEC 1000-4-3, Level 3 10V/m
Fast Transient Burst	IEC 1000-4-4, Level 3, 3.5 kV input power
Surge	
IEC	1000-4-5 Level 3, 2kV line-to-line; Level 4, 4kV line-to-ground
ANSI/IEEE	C82.41 Surge and Ring Wave Compliance to a level of 6kV line-to-line
Hi-potential Test	Meets UL508 (2 x rated V + 1000V for 1 minute)
Vibration	IEC 68-2-6, 10-55Hz, 1mm peak-to-peak, 2 hours, 3 axis
Shock	IEC 68-2-27, 30g, 3 axis, 11ms duration, half-sine pulse
Mechanical	
Dimensions	3.1"H x 5.1" D x 3.9"W
Terminal Torque	7 in.-lbs.
Enclosure Material	Polycarbonate
Weight	1.2 lbs.
Maximum Conductor Size Through 77C	0.65" with insulation
Environmental	
Temperature Range	Ambient Operating: -40° to 70° C (-40° to 158°F) Ambient Storage: -40° to 80° C (-40° to 176°F)
Pollution Degree	3
Class of Protection	IP20, NEMA 1
Relative Humidity	10-95%, non-condensing per IEC 68-2-3
Programmable Operating Points	Range
LV- Low Voltage Threshold	85V - HV Setting
HV- High Voltage Threshold	LV Setting - 264V
MULT- # of Conductors or CT Ratio (XXX:5)	77C: 1-10 Conductors or 100-800 Ratio 77C-LR: 1 or 2
OC- Overcurrent Threshold	(20-100A) + MULT or 80-120% of CT Primary
UC- Undercurrent Threshold	(0, 10-98A) + MULT or 40-100% of CT Primary
TC- Overcurrent Trip Class *	5, J5, J10, J15, J15, J20, J20, J30, J30, or Lin (linear)
RD1- Rapid-Cycle Timer	0, 2 - 500 Seconds
RD2- Restart Delay After Overcurrent (motor cool-down timer)**	2-500 Minutes/Seconds
RD3- Restart Delay After Undercurrent (dry-well recovery timer)**	2-500 Minutes/Seconds
#RU- Number of Restarts After Undercurrent	0, 1, 2, 3, 4, A(Automatic)
ADDR- RS485 Address	A01-A99
#RO-Number of Restarts After Overcurrent	0, 1, OC1, 2, OC2, 3, OC3, 4, OC4, A(Automatic), OCA
UCTD- Undercurrent Trip Delay	2-60 Seconds

SymCom warrants its microprocessor-based products against defects in material or workmanship for a period of five (5) years from the date of manufacture. All other products manufactured by SymCom shall be warranted against defects in material and workmanship for a period of two (2) years from the date of manufacture. For complete information on warranty, liability, terms, returns, and cancellations, please refer to the SymCom Terms and Conditions of Sale document.



NOTE: PHASES A & C ARE INACTIVE. USE PHASE B FOR ALL ACTIVE CURRENT MEASUREMENTS. CT SECONDARY MUST MAKE FIVE PASSES THROUGH THE PHASE B CONDUCTOR WINDOW. NOTE: OTHER NECESSARY CONNECTIONS ARE NOT SHOWN.



* If a "J" is displayed in the trip class setting, jam protection is enabled. If programmed to "Lin", overcurrent trip delays are fixed linear-type delays set in OPT1.

** RD2 & RD3 can be programmed to minutes or seconds in OPT2.

OPT2 SETTING	RD2	RD3
0	Minutes	Minutes
1	Minutes	Seconds
2	Seconds	Minutes
3	Seconds	Seconds